

Double Patenting Rejection

The Examiner provisionally rejected claims 1, 10, 17, 18 and 24 under the judicially created doctrine of double patenting over claim 1 of copending Application No. 09/716,295. Applicants respectfully submit that Application No. 09/716,295 is not copending because it has been abandoned as the last date to responding to the pending office action was June 3, 2002. Because the parent application has been abandoned, no claims will issue from Application No. 09/716,295. Thus, the Applicant respectfully request withdrawal of the provisional double patenting rejection.

Rejections Under 35 USC §112

The Examiner has rejected claim 1 under 35 USC §112, second paragraph, as being indefinite because "it is unclear how a 'signaling means' is structurally related to the structural elements as claimed." In response, claim 1 has been amended to recite that the signaling means is positioned adjacent to a top of said housing.

The Examiner also rejected claim 1 as being indefinite because "it is unclear how the housing, main housing and lower housing are connected with respect to a 'main housing' and 'lens'". Applicants respectfully submit that the Examiner rejected claim 1 in error and meant to reject claim 2 as claim 1 does not recite a lens, a main housing, or a lower housing. Assuming that the Examiner meant to reject claim 2, the Applicant submits that claim 2 is definite as the housing is described as further comprising a main housing, a lower housing, and a lens. Furthermore, claim 2 has been amended to recite that the lower housing is connected to the second end of the main housing. Thus, as recited in claim 2, the housing comprises a lens coupled to the first end of the main housing and a lower housing coupled to the second end of the main housing.

Claim 10 was rejected by the Examiner as being indefinite because the claim recites that "lower housing is coupled to said lower housing." Furthermore, claim 10 was rejected because "said counter pressure chamber" and "said main pressure chambers" were not properly recited. That is, the Examiner states that the invention

was never understood to have a counter-pressure chamber and a main pressure chamber.

In response, Applicants submit that claim 10 properly recites that the tire pressure monitoring device includes a counter-pressure chamber and a main pressure chamber. However, in order to further the prosecution of this case, claim 10 has been canceled and rewritten as new claim 26. New claim 26 has been added to more clearly recite the features of the invention that were claimed in canceled claim 10. Accordingly, the rejection to claim is rendered moot and the Applicant requests withdrawal of the rejection.

The Examiner also rejects claims 17 and 24 because the recitations "said adapted" are improper. The Examiner state that the phrase "adapted" cannot establish physical structure between the housing and the valve. In response, claim 17 and 24 have been amended to remove the term adapted.

The Examiner rejects claim 20 and 21 because the claim is intended to be a method and must provide a step to establish a method. Applicants respectfully submit that claims 20 and 21 do indeed recite steps. That is, because claims 20 and 21 depend from independent claim 19, claims 20 and 21 incorporate all the limitations of claim 19. Accordingly, claims 20 and 21 include all the steps recited in claim 19. Furthermore, the Applicant respectfully asserts that there is no rule requiring that a dependent method claim recite an additional step. Thus, the Applicant submits that the rejection has been traversed, and the Applicant respectfully request withdrawal of the rejection.

In conclusion, the Applicant submits that the claims as presented in the amendment conform to all applicable requirements under 35 USC §112 and respectfully request that the rejections be withdrawn. The Applicant notes that such amendments are not intended to limit the claimed invention. Rather, such amendments are made solely in response to the Examiner's rejections.

Rejections Under 35 USC §102

The Examiner rejects claims 1, 5-9, and 18-21 under 35 USC §102(b) as being anticipated by Ballyns. The Examiner states that Ballyns teaches a tire monitoring apparatus comprising a housing 12 having a first 38 and a second 40 pressure chamber; a flexible membrane 36 which separates the first and second chambers; and a signaling means located within the housing that emits a warning signal when the pressure within the first pressure chamber is greater than the pressure within the second pressure chamber. For the reasons set forth below, the Applicant respectfully traverses the rejection of the claims and respectfully submits that these claims define patentable subject matter over the cited prior art reference.

The Ballyns reference discloses pressure monitoring device 60 that is positioned within the tire as depicted in FIG. 4. That is, it is required that the Ballyns pressure monitoring device be located within the tire in order to function properly. The pressure sensor is pressurized to a pressure which is about equal to pressure in which the sensor is designed to operate in use. (Col. 8, lines 26-28). The pressurized sensor is then placed in the tire and exposed to the ambient pressure within the tire. While the pressure within the tire may not be the same as the pressure within the chambers 38, 40, the pressures will equalize as the flexible membrane is permeable to air. In use, the flexible membrane will be deflected to touch a contact 52 when the rate of change of the pressure in the pressure chamber 40 exceeds the rate at which the fluid medium permeates the member 36. (Col. 6, lines 32-34). That is, if the air cannot cross the flexible membrane quickly enough to equilibrate the pressure differential between the two chambers, the flexible membrane will deflect toward the chamber with the lower pressure and touch the contact and emit a warning signal.

In sharp contrast to Ballyns, the tire pressure monitoring device of the present invention is affixed to a tire valve. Locating the device on the tire valve is advantageous as the tire pressure monitoring device is easily accessed and easily replaced if the device were to malfunction. Moreover, the tire pressure monitoring device of the present invention is an universal device that is calibrated using the pressure within the

tire. More specifically, when the device is initially attached to the tire valve, the first pressure chamber is pressurized with air pressure from the tire. The first chamber is then sealed and thereby calibrated. The second chamber is also pressurized with air from the tire, but the second chamber is in constant communication with the tire. Accordingly, when the tire pressure decreases, the pressure within the second chamber concomitantly decreases. Thus, unlike the Ballyns device, the monitoring device of the present invention does not have to be pressurized prior to use. NOT CLAIMED

Furthermore, the device of the present invention does not rely on a flexible membrane that is permeable to air. Rather, the flexible membrane of the present invention is not designed or intended to be permeable to air. Additionally, the pressure differential between the first and second chamber causes the flexible membrane of the present invention to deflect. In contrast, the Ballyns device teaches that the flexible membrane will deflect when air cannot cross the flexible membrane quickly enough to equilibrate the pressure differential between the two chambers.

Thus, given the preceding reasons, it is respectfully submitted that independent claim 1 and 18 are not anticipated by the Ballyns reference. Moreover, for at least the same reasons, claims 5-9 and 19-21, which variously depend from claims 1 and 18, respectively, are also patentable.

Rejections Under 35 USC §103

Claims 2-4, 10-17, and 24-25 are rejected under 35 USC §103(a) as being unpatentable over Ballyns in view of Chi. The Examiner states that Ballyns teaches the basic features of the present invention except for the transparent lens, screw cap, and a conductive gasket. Furthermore, the Examiner states that Ballyns does not teach removing the device to ensure the device is properly working, adding air to the tire and reattaching the monitoring device. In order to make up for the deficiencies of Ballyns, the Examiner cites Chi as teaching a transparent lens and a conductive gasket. The Examiner also states that removing the device to ensure proper function is obvious to a person of ordinary skill because these features are in the field of monitoring tire pressure, and mere duplication of the essential working parts only involves routine skill

in the art. The Examiner then concludes that it would have been obvious to modify the tire monitoring apparatus of Ballyns with a transparent lens and gasket as taught by Chi for the purpose of creating a tire monitoring apparatus that operates at optimum performance.

Applicant respectfully submits that Ballyns in view of Chi does not render the present invention obvious. First, there is no teaching or suggestion to combine Ballyns with Chi. While it is conceded that both these references teach the monitoring of tire pressures, a person of ordinary skill in the art would not think to combine these references as they work by disparate methods. As previously asserted, the Ballyns device is placed within the tire to monitor the pressure. According to Ballyns, a warning signal is emitted when the air cannot cross the flexible membrane quickly enough to equilibrate the pressure differential between the two chambers thereby resulting in the flexible membrane will deflect toward the chamber with the lower pressure and touch the contact to complete an electrical circuit.

In contrast, the Chi device is affixed onto the tire valve. The Chi device includes a spring attached to a floating seat. The spring is provided with a tension that counters the pressure within the tire. When the Chi device is initially affixed to the tire valve, the air pressure within the tire pushes the floating seat thereby compressing the spring. As the pressure within the tire decreases, the spring decompresses thereby revealing different colored sections of the alarm bolt to signal to the user if tire pressure is inadequate. While a gasket may be used in Chi to provide an air seal, it is respectfully submit that the gasket it not a conductive gasket as asserted by the Examiner. Additionally, the gasket disclosed Chi is not contemplated to be conductive as the Chi device does not have any associated electronics requiring a conductive gasket. Thus, the Applicant submits that neither Ballyns nor Chi contemplates or suggests that they may be combined to obviate the present invention because these air pressure devices operate by different and distinct methods. Furthermore, the addition of the transparent lens and conductive gasket to the Ballyns device would not be considered desirable, or even possible, by a person of ordinary skill in the art without the expectation of considerable modification and the exercise of inventive skill.

While it is desirable to have a tire monitoring apparatus that operates a optimum performance, the Applicant submits the apparatus which is the combination of Ballyns and Chi would not even result in a working product as recited in the claims of the present invention. If Ballyns were to include a transparent lens and gasket of Chi, the device would not be visible to an user as the device would be located within the tire. Furthermore, the Ballyns device as modified by Chi would not be removable so as to ensure that the device is working properly because the Ballyns device is located within the tire. In order to ensure that the device is working properly, the tire would have to be removed from the wheel rim to access the Ballyns device. Accordingly, the Applicant submits that the combination of the Ballyns and Chi devices would not render the present invention obvious.

Moreover, the Applicant submits that neither Ballyns nor Chi teaches a method wherein the device is removed to ensure the device is properly working. According to the teachings of the present invention, the device is affixed to the tire valve and air enters both the first and second chambers. The first chamber is sealed thereby trapping air within this chamber. When the air pressure is less than the air pressure within the first chamber by a predetermined pressure differential, the signaling means emits a warning signal. Thus, in the situation where the device has been calibrated (i.e., pressurized air is trapped within the first chamber) and is subsequently removed from the tire, the pressure within the second chamber returns to ambient pressure. The pressure differential causes the flexible membrane to deflect toward the second chamber (i.e., the chamber having ambient pressure). Accordingly, the flexible membrane contacts the negative terminal of the battery thereby completing an electrical circuit to cause a warning signal to be emitted.

As previously asserted, in order to ensure that the Ballyns device is working properly, the tire would have to be removed to access the Ballyns device. With respect to the Chi device, there is no chamber to store/trap air from the tire within the device. Accordingly, when the device is removed, the spring within the device is no longer compressed and the various colors on the alarm bolt are exposed. Thus, the Applicant submits that it would not be obvious to remove these prior art devices to check to see if

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these devices are working properly. Accordingly, the Applicant submits that claims 2-4, 10-17, and 24-25 are not rendered obvious by Ballyns in view of Chi.

CONCLUSION

Claims 1-9 and 11-26 are currently pending.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings to Show Changes Made."

If for any reason direct communication with Applicants' attorney would serve to advance prosecution of this case to finality, the Examiner is cordially urged to call the undersigned attorney at the below listed telephone number.

The Commissioner is authorized to charge any fee which may be required in connection with this Amendment to deposit account No. 50-1901.

Respectfully submitted,

Dated: 7-7-02



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